

REMARKS

This response is submitted in reply to the Office Action mailed November 29, 2004 ("the Action"). Claims 1-29 are pending in the application.

I. The Drawing Objection

The Action objects to the drawings because "they do not include the following reference sign(s) mentioned in the description: '61'". Applicants respectfully direct the Examiner's attention to Figure 1B, where this reference sign (61s) is found. As such, Applicants request that this objection be withdrawn.

II. Claim Objections

The Action objects to the use of the term "A...according to" in the preamble of the dependent claims and suggests that the claims be amended to recite "The....". Action, ¶¶ 1-5. Applicants respectfully request reconsideration of this rejection. 37 CFR 1.75 does not require this specific claim format. Indeed, the pending claims are in a generally accepted format as is indicated in the text of many issued patents. Further, even the MPEP uses the "A..." format when explaining the use of multiple dependency claims. *See* MPEP p. 600-75, a copy of which is attached for the Examiner's ease of reference. Accordingly, Applicants respectfully submit that Claims 2-10, Claims 12-15, Claims 17-18, and Claims 20-21 are in acceptable form and correction for the "informalities" noted is not required. Applicants respectfully request that the claim informality objections be withdrawn.

Applicants have amended Claim 1 above (Claim 14 has been canceled) to obviate the informalities noted in ¶¶ 6-8 of the Action.

III. The Art Rejections

The Action rejects Claims 1, 4-7, 9-14 and 16-21 as being anticipated by EP 0 833 455 A2 to Kivela ("Kivela"). The Action rejects Claims 2 and 15 as being obvious over Kivela in view of WO 02/078123A1 to Bolin et al. ("Bolin") and Claim 3 as being obvious

over Kivela in view of US2003/0122726 to Abbasi et al. ("Abbasi"). The Action also rejects Claim 8 as being obvious over Kivela in view of WO 01/33664 A1 to Olsson et al. ("Olsson"). Applicants respectfully disagree.

A. The § 102 Rejections

The Action states that Kivela teaches a modular external antenna assembly adapted to replace an internal antenna [116] in a wireless terminal (citing Figures 6-7 and 12-13). Action, p. 3. Kivela discusses a mobile telephone with a plurality of detachable accessory units "adaptable to a variety of specialized capabilities" (p.2, lines 20-22). Figure 12 illustrates a flat profile antenna 116 that is engageable with the antenna interface 62B on the main unit 52 when the casing 56 is attached to the main unit (p. 6, lines 50-57). Lead 118 electrically connects the flat profile antenna 116 to the antenna interface (p. 6, lines 56-57). As stated in Kivela, the "construction illustrated in Figure 12 offers a suitable location and a suitable area for such a flat profile antenna and offers the user of the phone the capability of changing from a standard helical antenna to a flat profile antenna with minimal effort" (p. 7, lines 3-5).

Figure 13 of Kivela is a modified version of the "specialized component" 120/114 discussed above with respect to Figure 12. This embodiment illustrates a flat profile antenna 116 that is mounted on casing 122 with a flat profile antenna lead 124 that electrically connects the antenna 116 to flat antenna feed 126 "such that the antenna feed is in electrical continuity with the flat profile antenna but disengaged from a whip antenna feed 128 when the casing 56 is attached to the main unit 52" (p. 7, lines 9-14). Kivela also states, with respect to Figures 13 and 14A-C, that when the whip antenna is in the retracted position, "the second contact member 134 is in electrical continuity simultaneously with the whip antenna feed 128 and with the flat profile antenna feed 126 (p. 8, lines 12-14). The housing/casing shown in Figure 13 includes both the external and internal antenna.

In contrast, certain embodiments of the present invention are directed to antenna modules that can be attached to the wireless terminal and override operation of a first internal antenna while the internal antenna is held substantially in its normal operational position in

the housing. As stated at page 5 of the instant application, "[t]he modular component can be configured to disengage the internal antenna from operation with the external antenna, thereby providing the active antenna for the device" (*see also* Figures 1A, 1B, p. 2 lines 7-10 of the Summary of the Invention, p. 11, lines 10-15, and original Claims 1, 11 and 19). The specification also states that the term "modular" means that the external antenna housing component or panel of the antenna housing component is configured with standardized dimensions that allow the antenna housing to interchangeably mount to and replace a portion of a wireless terminal product that is configured to also accept and/or hold an internal antenna (p. 5, lines 17-24). In some particular embodiments, the replacement antenna (which can include another internal antenna, and in some embodiments is an external antenna) can operate at substantially the same resonant frequencies as the internal antenna to allow substantially transparent operational frequency band integration in the wireless terminal device upon installation (*see* p. 5, lines 30-32, p. 10, lines 27-33 and new dependent Claims 22-25).

The pending independent claims are stated below for ease of discussion.

1. A modular antenna assembly adapted to operationally replace a first internal antenna held in a wireless terminal device, comprising:
a modular antenna housing; and
a second antenna attached to the modular antenna housing,
wherein the modular antenna housing has a shape that is adapted to attach to a predetermined portion of the wireless terminal device, and wherein the modular antenna housing and second antenna are configured to engage the wireless terminal device to cause the wireless terminal device to operate with the second antenna while the first internal antenna remains in position in the wireless terminal device with the second antenna disengaging the internal antenna from operation.

11. An aftermarket antenna kit for operational replacement of an internal antenna for a wireless terminal device comprising:
a modular housing;
a replacement antenna held by the modular housing, the modular housing configured and sized to mount to a portion of a wireless terminal device while an internal antenna remains substantially in position in the wireless terminal device, the wireless terminal device being configured to operate with the internal antenna when

the modular housing is not mounted thereto, wherein, when mounted, the modular housing is configured to disengage the internal antenna.

16. A wireless terminal product, comprising:

- (a) a housing having opposing front and back portions, the back portion configured with a cavity and frame that is sized and configured to releaseably serially accept one of a desired interchangeable first or second upper rear panel to enclose the cavity, the housing configured to enclose a transceiver that transmits and receives wireless communications signals;
- (b) a ground plane disposed within the housing;
- (c) a first planar inverted-F internal antenna configured and sized to be positioned within the housing and electrically connected with the transceiver, wherein the first internal antenna comprises a planar dielectric substrate and a planar conductive element disposed on the planar dielectric substrate;
- (d) a second antenna configured and sized to mount to the housing and be held by the second rear panel while the first internal antenna remains in position in the housing; and
- (e) a signal feed configured to electrically connect to the first internal antenna when the second rear panel with the second antenna is not mounted to the housing and electronically connect to the second antenna when the second rear panel with the second antenna is mounted to the housing via a connector positioned in the cavity of the housing, responsive to whether the second rear panel with the second antenna is in position on the housing, wherein, in position, the second rear panel with the second antenna is configured to disengage the first internal antenna from operation.

19. A method for retrofitting a wireless device configured to operate with an internal antenna to allow operational replacement of the internal antenna with a replacement antenna:

- providing a wireless terminal with a housing and a first internal antenna;
- mounting a modular antenna assembly that has a predetermined shape and size to the wireless terminal while the first internal antenna remains in the housing, wherein the modular antenna assembly comprises a second antenna; and
- disengaging the internal antenna from operation responsive to the mounting of the modular antenna assembly so that the wireless terminal operates with the second antenna instead of the first internal antenna.

Applicants submit that the above claims are patentable for at least the features underlined in the claims above and are clearly not anticipated by the cited reference.

Further, the dependent claims also recite novel features that are patentable over Kivela. For example:

Claim 7 recites in part that the second antenna is an external stub antenna that is configured to disengage the internal antenna.

Claim 8 recites in part that the second antenna is an external fin antenna that is configured to disengage the internal antenna.

Claim 9 recites in part that the second antenna is an external retractable antenna that is configured to disengage the internal antenna.

Claim 10 recites in part the external antenna is configured to mount to the rear of the wireless terminal device so as to reside over a ground plane therein, the ground plane in the wireless terminal being configured to operatively engage the internal antenna when the external antenna is not in position in/on the wireless terminal device.

Claim 17 recites in part a ground feed connector disposed in the housing cavity proximate the signal feed connector, electrically connected to one of the first internal and second antennas depending on which of the first and second upper rear panels are in position on the housing.

Claim 20 recites in part that the disengaging the internal antenna is carried out by removing the first panel and then attaching the second panel.

In view of the foregoing, Applicants respectfully submit that Kivela fails to teach at least the noted features and therefore does not anticipate the claims. Applicants respectfully request that the anticipation rejections be withdrawn.

B. The §103 Obviousness Rejections

1. Claims 2 and 15

The Action concedes that Kivela fails to teach that the signal and ground connectors reside substantially centrally in a top portion of the modular housing. Action, p. 8. However, the Action cites Bolin as teaching signal and ground connectors 11 that reside in this manner and concludes that it would have been obvious to substitute for the signal and ground

connector shown in Kivela with that shown in Bolin " to change the position of feed and ground connector." Action, p. 8. Applicants respectfully disagree.

Applicants submit that there is no motivation to move the feed and ground connector of Kivela, which shows all antenna leads and signal feeds on an outer left side of the device (*see Figures 7, 9, 10, 11, 12, 13, 15, 16 and 17*) to engage the retractable whip antenna(s). Bolin teaches a built-in multi-band/multi antenna system. One of skill in the art would not have been motivated to move the antenna connector/feed of Kivela absent the teachings of the instant invention.

2. Claim 3

The Action goes on to reject Claim 3 allegedly because Abbasi teaches in fig. 5, a signal feed 140 on a downwardly protruding finger and that one of skill in the art would have found it obvious to substitute the signal feed of Kivela with that of Abbasi in order to the "feed [the] contact extending from the radiating element". Action, p. 9 (citing col. 5, Abstract). However, Abassi configures the signal feed 140 as part of a generally rigid end-housing 520 which is internal to the device and is not mounted on the inner surface of the modular antenna housing as recited in Claim 3.

Applicants submit that one of skill in the art would not have been motivated to alter the signal feed of Kivela to use a downwardly extending finger on the replaceable housing component as claimed.

3. Claim 8

The Action also rejects Claim 8 as being obvious by concluding that it allegedly would have been obvious to replace the external antenna of Kivela with the fin antenna taught by Olsson "to change the configuration of the external antenna." Action, p. 9. Applicants respectfully disagree.

All of the external antennas proposed by Kivela are whip (retractable/extendable antennas) which connect to a left side signal feed. The two antennas of Olsson are antennas that are prebuilt into the device. Absent the teachings of the instant invention, one of skill in

Attorney Docket No. 9314-42
Application Serial No. 10/627,928
Filed: July 25, 2003
Page 14

the art would not have been motivated to modify the signal lines of the replaceable casing to accommodate a fin antenna as recited in Claim 8.

V. New Claims

In order to form a more complete claim set, Applicants have added new dependent Claims 22-29, which recite that the second antenna comprises an external antenna and/or that the external antenna operates at substantially the same frequencies as the internal antenna. The claims are supported by the specification (*see, e.g.*, p. 5, lines 30-32). Entry and consideration of the new claims is respectfully requested.

VI. Replacement Figures 4A and 4B

Applicants have enclosed Replacement sheets for Figures 4A and 4B to electrically connect the conductive signal feed (342e and 342c) as was shown on the originally filed informal figures, but which was incorrectly illustrated in the first replacement sheets.

Attorney Docket No. 9314-42
Application Serial No. 10/627,928
Filed: July 25, 2003
Page 15

VII. Conclusion

Accordingly, Applicant submits that the present application is in condition for allowance and the same is earnestly solicited. Should the Examiner have any matters outstanding of resolution, he is encouraged to telephone the undersigned at 919-854-1400 for expeditious handling.

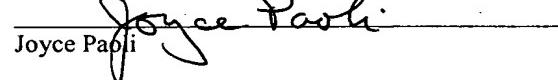
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